



Part no.: 50133022  
**MSI-SR-ES31-01**  
Safety relay



Figure can vary

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## Technical data

<b>Basic data</b>	
Series	MSI-SR-ES31
Application	Base device for E-Stop applications

<b>Functions</b>	
Functions	Monitoring of E-Stop circuits Monitoring of position switches Monitoring of proximity switches
Restart	Automatic Manual

<b>Characteristic parameters</b>	
SIL	2 , IEC 61508
SILCL	2 , IEC/EN 62061
Performance Level (PL)	d , EN ISO 13849-1
MTTF <sub>d</sub>	73 years , EN ISO 13849-1
PFH <sub>D</sub>	8,6E-10 per hour
Mission time T <sub>M</sub>	20 years , EN ISO 13849-1
Category	3 , EN ISO 13849
B10 <sub>d</sub> at DC13 (inductive load)	300,000 number of cycles , (5 A, 230 V), 700,000 (1 A, 230 V)
B10 <sub>d</sub> at AC15 (inductive load)	200,000 number of cycles , (5 A, 230 V), 380,000 (1 A, 230 V)

<b>Electrical data</b>	
<b>Supply circuit</b>	
Nominal voltage U <sub>N</sub>	24 V AC/DC
Nominal frequency	50 ... 60 Hz
Operating voltage	0.85 ... 1.1 x U <sub>N</sub>
Rated power DC	1.3 W
Galvanic isolation between supply and control circuit	Yes (when U <sub>N</sub> ≥ AC 115-120 V, AC 230 V)
<b>Output circuit</b>	
Number of outputs, safety-oriented, undelayed, contact-based	3 Piece(s)
Number of outputs, signaling function, undelayed, contact-based	1 Piece(s)
Release current paths	NO
Signaling current paths	NC
Contact material	Ag alloy, gold-plated
Usage category AC-15 (NO contact)	Ue 230V, Ie 5A
Usage category DC-13 (NO contact)	Ue 24V, Ie 5A
Short circuit protection (NO contact)	gG class safety fuse 6A, melting integral
Nominal switching voltage, release current paths AC	230 V
Nominal switching voltage, signaling current paths AC	230 V
Max. thermal continuous current I <sub>th</sub> , release current paths	8 A
Max. thermal continuous current I <sub>th</sub> , signaling current paths	5 A
Max. total current I <sup>2</sup> of all current paths	9 A <sup>2</sup>
Mechanical life time	100,000,000 switching cycles

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**Control circuit**

Evaluation of the inputs	one- or two-channel
Nominal output voltage DC	24 V
Input current at the control inputs (safety circuit/reset circuit)	90 mA
Max. peak current at the control inputs (safety circuit/reset circuit)	1,500 mA
Max. cable resistance, per channel	$\leq (5 + (1.333 \times U_B / U_N - 1) \times 200) \Omega$
Minimum switch-on time	60 ms
Response time (automatic start $t_{A2}$ )	60 ms
Release time $t_R$	60 ms
Recovery time $t_W$	200 ms

**Connection**

Number of connections	1 Piece(s)
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**Connection 1**

Type of connection	Terminal
Function	Signal IN Signal OUT Voltage supply
Type of terminal	Screw terminal
No. of pins	15 -pin

**Cable properties**

Connection cross sections	1 x 0.2 to 2.5 mm <sup>2</sup> , wire 1 x 0.2 to 2.5 mm <sup>2</sup> , wire 1 x 0.25 to 2.5 mm <sup>2</sup> , wire with wire-end sleeve 2 x 0.2 to 1.0 mm <sup>2</sup> , wire 2 x 0.2 to 1.0 mm <sup>2</sup> , wire 2 x 0.25 to 1.0 mm <sup>2</sup> , wire with wire-end sleeve
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**Mechanical data**

Dimension (W x H x L)	22.5 mm x 96.5 mm x 114 mm
Net weight	200 g
Housing color	Gray
Type of fastening	Snap-on mounting

**Certifications**

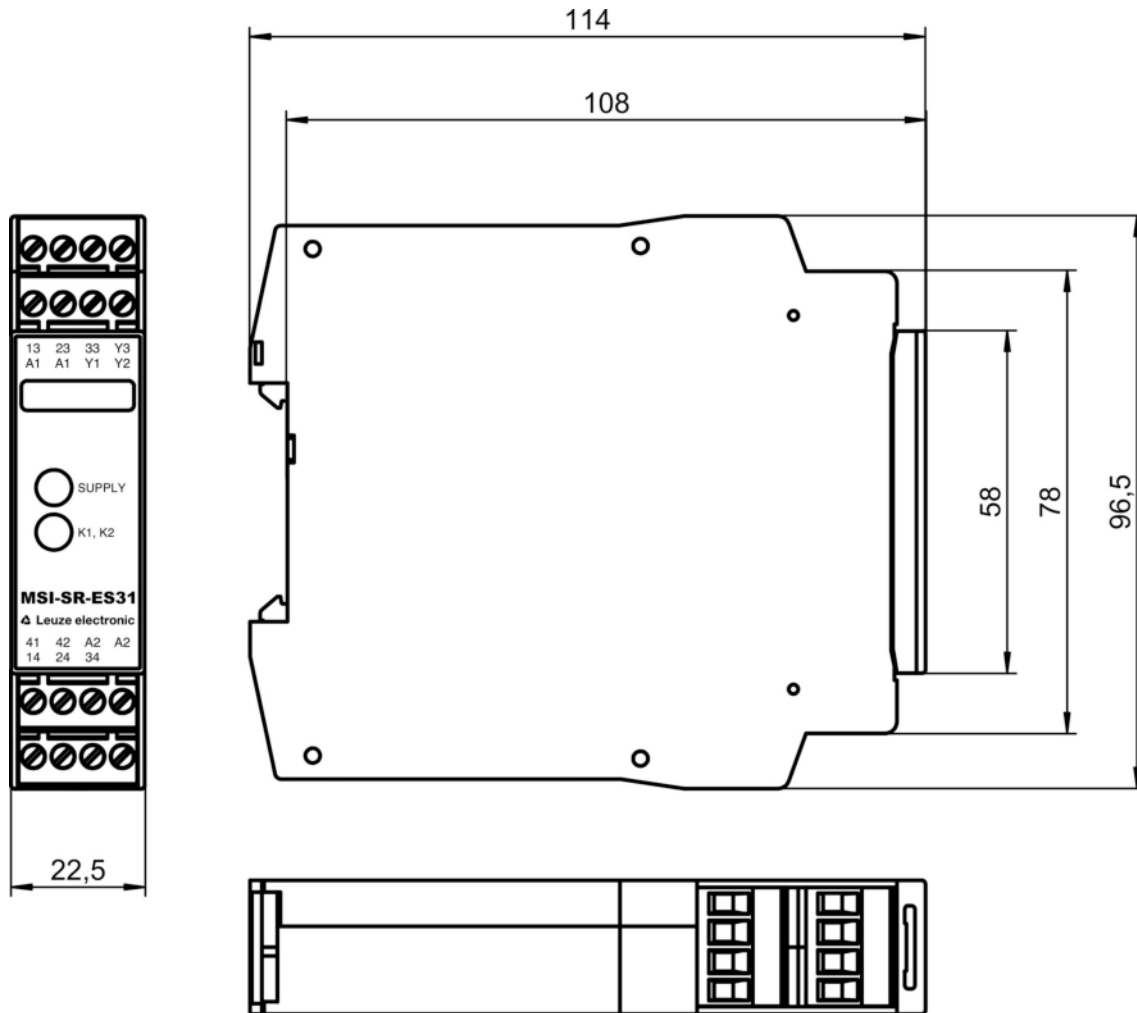
Certifications	c UL US TÜV Rheinland
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**Classification**

Customs tariff number	85364900
eCl@ss 8.0	27371819
eCl@ss 9.0	27371819
ETIM 5.0	EC001449
ETIM 6.0	EC001449

## Dimensioned drawings

All dimensions in millimeters



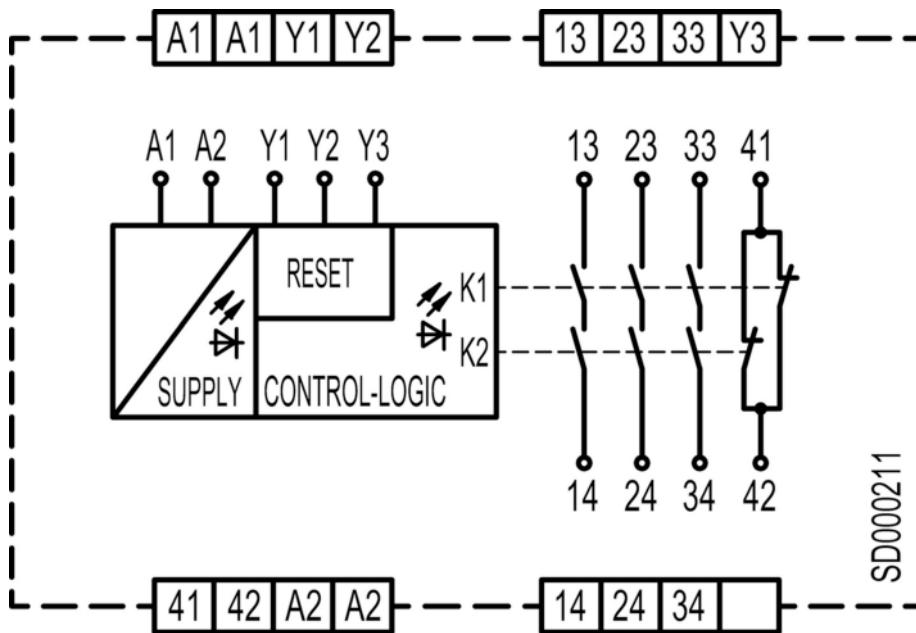
## Electrical connection

Connection 1	
Type of connection	Terminal
Function	Signal IN Signal OUT Voltage supply
Type of terminal	Screw terminal
No. of pins	15 -pin

Terminal	Assignment
13	Release current path 1 (NO contact)
14	Release current path 1 (NO contact)
23	Release current path 2 (NO contact)
24	Release current path 2 (NO contact)
33	Release current path 3 (NO contact)
34	Release current path 3 (NO contact)
41	Signaling current path (NC contact)
42	Signaling current path (NC contact)
A1	+24V
A1	+24V

Terminal	Assignment
A2	GND
A2	GND
Y1	Control circuit of reset button
Y2	Control circuit of reset button (automatic reset)
Y3	Control circuit of reset button (manual reset)

### Circuit diagrams



### Notes

**Observe intended use!**

- The product may only be put into operation by competent persons.
- Only use the product in accordance with its intended use.